

IN THE CLAIMS:

Please cancel claims 1, 9, and 10 without prejudice.

In accordance with the Revised Rules under 37 C.F.R. 1.121, please amend the claims as shown below and indicated as “currently amended.” Also shown below are claims that may be original, cancelled, withdrawn, previously presented, new, and not entered.

1. (cancelled) ~~An antenna including a feed network; four or more helical radiating elements, and four or more impedance matching elements each coupling a respective radiating element to ground in parallel with the feed network.~~
2. (currently amended) The antenna of claim 11 + wherein each impedance matching element is a stub.
3. (currently amended) The antenna of claim 11 + wherein each impedance matching element is an inductive element.
4. (currently amended) The antenna of claim 11 + wherein each impedance matching element is a stub coupled to ground via a conductive short circuit connection.
5. (currently amended) The antenna of claim 11 + wherein the antenna is a quadrifilar antenna having four radiating elements.
6. (currently amended) The antenna of claim 11 + including four feed lines each connected to a respective radiating element at a respective junction, wherein each impedance matching element is connected at a connection point located at or adjacent to the junction.
7. (original) The antenna of claim 6 wherein the connection point is located on the radiating element adjacent to the junction.
8. (original) The antenna of claim 6 wherein the connection point is located on the feed line adjacent to the junction.
9. (cancelled) ~~The antenna of claim 1 further including a ground plane, wherein each impedance matching element couples a respective radiating element to the ground plane in parallel with the feed network.~~

10. (cancelled) ~~The antenna of claim 9 further including a substrate which carries the radiating elements on a first side and the ground plane on a second side.~~

11. (currently amended) An antenna including:

a feed network;

four or more helical radiating elements;

four or more impedance matching elements each coupling a respective radiating element to ground in parallel with the feed network; and

a substrate which carries the radiating elements on a first side and a ground plane on a second side. ~~The antenna of claim 10 wherein the substrate carries the impedance matching elements on the second side and each impedance matching element couples a respective radiating element to the ground plane in parallel with the feed network.~~

12. (currently amended) An antenna including:

a feed network;

four or more helical radiating elements;

four or more impedance matching elements each coupling a respective radiating element to ground in parallel with the feed network;

a substrate which carries the radiating elements on a first side and a ground plane on a second side, wherein each impedance matching element couples a respective radiating element to the ground plane in parallel with the feed network and ~~The antenna of claim 10 wherein each impedance matching element includes a plated-through hole passing through the substrate.~~

13. (currently amended) The antenna of claim 11 ~~+~~ wherein the antenna is configured to transmit and/or receive circularly polarized radiation.

14. (currently amended) The network of claim 11 ~~+~~ wherein the feed network is a microstrip feed network.

15. (currently amended) The network of claim 11 ~~+~~, wherein the feed network includes a hybrid coupler.

16. (original) The network of claim 15, wherein the hybrid coupler has no terminated port.

17. (original) The network of claim 15 wherein the hybrid coupler is a ring hybrid.

18. (currently amended) The antenna of claim 11 + wherein the feed network includes a 180° hybrid coupler having a feed port, a 0° port; a 180° port having an approximately 180° phase difference with the 0° port; a first antenna port coupled to the 0° port; a second antenna port coupled to the 0° port via a respective phased line, the second antenna port having an approximately 90° phase difference with the first antenna port; a third antenna port coupled to the 180° port; and a fourth antenna port coupled to the 180° port via a respective phased line, the fourth antenna port having an approximately 90° phase difference with the third antenna port.
19. (currently amended) The antenna of claim 11 + wherein the feed network has an output impedance between 45 and 55 ohms.
20. (currently amended) The antenna of claim 11 +, wherein the radiating elements each have substantially the same length.
21. (currently amended) The antenna of claim 11 +, wherein the radiating elements are each coupled to the feed network at one end, and open circuited at another end.
22. (new) The antenna of claim 12 wherein each impedance matching element is a stub.
23. (new) The antenna of claim 12 wherein each impedance matching element is an inductive element.
24. (new) The antenna of claim 12 wherein each impedance matching element is a stub coupled to ground via a conductive short circuit connection.
25. (new) The antenna of claim 12 wherein the antenna is a quadrifilar antenna having four radiating elements
26. (new) The network of claim 12 wherein the feed network is a microstrip feed network.
27. (new) The network of claim 12 wherein the feed network includes a hybrid coupler.